

SPECIFICATION

TITLE

"MARKER FOR USE IN A MAGNETIC ANTI-THEFT SECURITY SYSTEM"

CROSS-REFERENCE TO RELATED APPLICATIONS

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This application is a continuation-in-part of U.S. Serial No. 10/371,894, filed February 21, 2003, which was a continuation of U.S. Serial No. 09/269,490, filed June 8, 1999, which was a National Stage Application under 37 CFR 371 of PCT/DE98/01984, filed July 15, 1998, which claimed priority from German 197 32 872.5, filed July 30, 1997.

now U.S. Patent No. 6,689,490 B2,
now U.S. Patent No. 6,663,981 B1,

BACKGROUND OF THE INVENTION

The present invention is directed to a marker for use in a magnetic anti-theft security system. The marker is of a type composed of an oblong alarm strip composed of an amorphous ferromagnetic alloy, and at least one activation strip composed of a semi-hard magnetic alloy.

Magnetic anti-theft security systems and markers for security systems of the above type are well known and are described in detail in, for example, EP 0 121 649 B1 and WO 90/03652. First, there are magneto-elastic systems wherein the activation strip serves for activation of the alarm strip by magnetizing it; second, there are harmonic systems wherein the activation strip, after being magnetized, serves for the deactivation of the alarm strip.

The alloys with semi-hard magnetic properties that are employed for the pre-magnetization strip include Co-Fe-V alloys, which are known as VICALLOY, Co-Fe-Ni alloys, which are known as VACOZET, as well as Fe-Co-Cr alloys. These known semi-hard magnetic alloys contain high cobalt parts, some at least 45 weight %, and are correspondingly expensive.

In addition, while in their magnetically finally annealed condition, these alloys are brittle, so that they do not exhibit adequate ductility in order to adequately meet the demands given markers or display elements for anti-theft security systems. One important